**Straws and Connectors Worksheet 12a- Growing Tower 3**

**Figure 1 Figure 2 Figure 3**

**What do you notice?**

**What do you wonder?**

**Straws and Connectors Worksheet 12a- Growing Tower 3**

1. **Visual Pattern. Draw figure 4**

**Figure 1 Figure 2 Figure 3 Figure 4**

1. **Table**

|  |  |  |
| --- | --- | --- |
| **Figure Number (n)** | **Number of Cubes(C)** | **Number Of Square Faces(S)** |
| ***1*** |  |  |
| ***2*** |  |  |
| ***3*** |  |  |
| ***4*** |  |  |
| ***5*** |  |  |
| ***10*** |  |  |
| ***20*** |  |  |
| ***n*** |  |  |

1. **a) Rule in words for finding the number of cubes for any figure number- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b) Rule in words for finding the number of square faces for any figure number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**IV . Rule in Symbols a)**Rule for Cubes b) Rule for Square Faces

**V. Graph** . Plot the ordered pairs on the same coordinate plane. Connect all points on each set . Set 1 – (n,C) , Set 2 –(n, S)



Set 1

|  |  |
| --- | --- |
| **n** | **C** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Set 2

|  |  |
| --- | --- |
| **n** | **C** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. **Describe each graph.**
2. **What geometric relationship exists between the two graphs?**
3. **What conjectures can you make about the two equations and their graphs?**

**Straws and Connectors Worksheet 12a- Growing Tower 3**

1. **Visual Pattern. Draw figure 4**

**Figure 1 Figure 2 Figure 3 Figure 4**

1. **Table-** Complete the Table below.

|  |  |  |
| --- | --- | --- |
| **Figure Number (n)** | **Number of Cubes(c)** | **Number Of Square Faces(s)** |
| *1* | ***3*** | ***14+8(0)=14*** |
| *2* | ***6*** | ***14+8(1)=22*** |
| *3* | ***9*** | ***14+8(2)=30*** |
| *4* | ***12*** | ***14+8(3)=38*** |
| *5* | ***15*** | ***14+8(4)=46*** |
| *10* | ***30*** | ***14+8(9)=86*** |
| *20* | ***60*** | ***14+8(19)=166*** |
| *n* | ***3n*** | ***14+8(n-1)=8n+6*** |

1. **a)Rule in words for finding the number of cubes for any figure number . *The number of connectors is equal to the figure number times 3 .***

**b) Rule in words for finding the number of square faces for any figure number. *The number of straws is equal to 6 plus 8 times the figure number.***

**IV . Rule in Symbols**

1. Rule for Cubes b) Rule for Square Faces

**C = 3n S = 8n + 6**

1. Graph

